CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

CALIFORNIA AIR RESOURCES BOARD

STAFF REPORT ON THE PROPOSED ALLOCATIONS OF $25 MILLION FOR THE ALTERNATIVE FUEL INCENTIVE PROGRAM

Release Date: May 15, 2007

I. INTRODUCTION AND SUMMARY

In fiscal year 2006-2007, the California Air Resources Board (ARB) budget contained
$25 million (see Budget Language in Attachment A) for the purposes of incentivizing biofuels and high efficiency, low emitting vehicle technology. The intent of the Legislature was that these funds be used for assisting in the development of specific measures to reduce air pollution and greenhouse gas emissions. These funds are to be awarded by
June 30, 2007, consistent with an expenditure plan jointly developed by the ARB and the California Energy Commission (CEC).

ARB and CEC staff developed proposed concepts (Attachment B) for expending the allocated $25 million for alternative fuel projects pursuant to Assembly Bill (AB) 1811 (Attachment A). The concepts were developed in consideration of the public comments provided at a public workshop held on September 21, 2006, in Sacramento, California, and over 50 written comments that were submitted from August-October 2006.

II. GUIDING PRINCIPLES

The ARB and CEC staff worked together to develop a plan to expend the funds. In developing the proposed categories and recommendations for funding levels, ARB and CEC staff identified a number of guiding principles. First, the recommendations had to be consistent with the budget language shown in Attachment A. Second, the proposals needed to be consistent with administration policies, including recommendations identified in Executive Order S-06-06, the Climate Change Action Plan, and the Bioenergy Action Plan. Third, the monies should be used to fund meaningful demonstrations of technologies and not for long term research. Finally, both staffs identified the need to retain flexibility to shift funding priorities from one category to another based on the merit of proposals received.

III. CONCEPTUAL RECOMMENDATIONS

As identified in Attachment B, ARB and CEC staff proposed to the ARB Board at a public meeting on October 19, 2006, that monies be expended in the following categories:

- Infrastructure for dispensing E85 (fuel that is 85% ethanol and 15% gasoline) and potentially other alternative fuels ($7 million)
- Startup of small biofuels production facilities ($5 million)
- Hybrid electric vehicle demonstration projects ($5 million)
- Transit bus projects ($2 million)
- Incentives for PZEVs and ZEVs ($1.5 million)
- Alternative fuel vehicle research ($3.5 million)
- Funding for consumer education and outreach ($1 million)

The ARB Board approved staff's proposed funding categories and allocation at the October public meeting. Following the October 19, 2006 Board meeting, ARB and CEC staff jointly developed grant solicitations for each category. For a description of each category, please see Attachment B. The solicitations included the criteria that staff would use in rating the project proposals. The dollar amounts shown above are those initially estimated by staff. After the responses to the solicitations were received and evaluated, adjustments to the proposed distribution of monies were made.

IV. SCHEDULE

The Budget Bill provided that the money be encumbered by June 30, 2007 and be expended by June 30, 2009. To accomplish this, staff developed solicitations that were sent to the interested stakeholders on February 9, 2007. Staff received responses to the solicitations by the deadline on March 19, 2007. A multi-state agency team comprised of the ARB, CEC, State Water Resources Control Board, Integrated Waste Management Board, California Department of Food and Agriculture, California Department of Forestry, and other agencies reviewed the proposals and developed recommendations for awarding grants in April 2007. ARB and CEC staff will present the multi-state agency recommendations to the Board at the May 24, 2007 public meeting. Upon ARB Board approval, awards will be made in late May and June 2007. For further details on the recommended projects, please see Attachment B.

ATTACHMENT A

Assembly Bill 1811

Chapter 48 – Pages 30-31
(June 2006)

6. $25 million shall be expended in the budget year pursuant to an expenditure plan jointly developed by the State Air Resources Board and the Energy Conservation Resources and Development Commission for all of the following purposes:
    (a) Market-based incentives such as buydowns, rebates, credits, or other incentives for purchasers of high efficiency, high mileage, clean alternative fuel light, medium, and heavy duty vehicles, both individual and public fleet, in California.
    (b) Production incentives such as loans, loan guarantees, and credits for clean alternative fuel production in California.
    (c) Market-based incentives such as loans and loan guarantees for the construction of publicly accessible, clean alternative refueling stations, including refueling stations that sell ethanol blends consisting of at least 85 percent ethanol E-85, sufficient in number to match the existing and anticipated supply of E-85 vehicles in California.
    (d) Grants for research and development of clean and zero emission fuels and vehicle technology to assist in making those technologies affordable in the marketplace.
    (e) Incentives to replace the current state vehicle fleet with clean, high mileage alternative fuel vehicles.
7. None of the funds appropriated pursuant to Provision 6 shall be used for incentives, grants, or any other form of state support for the development of fuels derived from petroleum, petroleum coke, or coal.
8. In approving the funding and positions pursuant to this item, it is the intent of the Legislature to ensure that the specific measures to reduce air pollution and greenhouse gas emissions be undertaken and completed by the State Air Resources Board in the fiscal year. Accordingly, the board shall submit quarterly reports on the expenditure of these funds, and the status of the development and adoption of the measures.

ATTACHMENT B

Alternative Fuel Incentive Program

Summary & Description of Proposed Projects for Funding

May 15, 2007

Summary Table

Category and project totals rounded to nearest thousand.

E85 and Other Alternative Fuel Infrastructure Projects		**$5,367,000**
A-1	Retail E85 Stations Located Along Hwy 101 and I-405	$580,000
A-2	Retail E85 Stations modeled after RTC established throughout California	$803,000
A-3	Retail Cardlock B99 station in Orange County	$14,000
A-4	Retail and Fleet Electric Vehicle Recharging Stalls	$175,000
A-5	Retail and City Fleet Use E85 Station in Tulare	$106,000
A-6	Fleet E85 Station at UC Davis	$70,000
A-7	Fleet CNG station upgrade (two new dispensers) for City of San Francisco	$54,000
A-8	Fleet CNG station upgrade (two new tanks) for City of San Francisco	$57,000
A-9	Fleet E85 station for Los Angeles County FFV fleet	$8,000
A-10	Sacramento Metropolitan Area E85 Stations	$3,500,000
Biofuels-Startup of Small Production Facilities in California		**$6,000,000**
B-1	Convert cow manure waste into biofuel (Bakersfield)	$650,000
B-2	Produce Methane from Dairy Digester to power converted diesel milk trucks and generate electricity (Tulare County)	$600,000
B-3	Convert landfill gas generated at Bowerman Landfill to liquefied natural gas (LNG) (Orange County)	$640,000
B-4	Convert landfill gas generated at Altamont Landfill to liquefied natural gas (LNG) (Livermore)	$610,000
B-5	10 MM gallons per year biodiesel plant (Oakland)	$620,000
B-6	3 MM gallons per year biodiesel plant (Pacifica)	620,000
B-7	10 MM gallons per year biodiesel plant (Sacramento)	640,000
B-8	1.7 MM gallons per year biodiesel plant (San Diego)	590,000
B-9	5 MM gallons per year biodiesel plant (Chilcoot)	400,000
B-10	10 MM gallons per year biodiesel plant (Santa Fe Springs)	630,000
Plug-in Hybrid, and Alternative Fuel Vehicles		**$5,000,000**
C-1	California Clean Mobility Partnership (CalCMP)	$1,103,000
C-2	Development of commercial medium power charging station	$561,000
C-3	Evaluation of Emerging Battery Technologies for Plug-in HEVs	$344,000
C-4	PHEV Demonstration and Consumer Education, Outreach, and Market Research Program	$1,500,000
C-5	SAE Formula Hybrid Sponsorship	$142,000
C-6	“Electric Garage”	$150,000
C-7	Medium-Duty PHEV Demonstration	$1,200,000
Transit Bus Projects		**$ 2,000,000**
D-1	Battery Dominant, Fuel Cell, Plug-in Hybrid Transit Bus	$1,370,000
D-2	Bay Area Zero Emission Bus Advanced Demonstration	$ 630,000
Alternative Fuel Vehicle Incentive Program		**$1,500,000**
E-1	Alternative Fuel Incentive Program Administrator	$1,500,000
Consumer Education and Outreach		**$1,600,000**

F-1	Statewide Consumer Marketing Campaign to Promote Advanced Technology and Alternative Fuel Vehicles	$1,000,000
F-2	EcoCenter Alternative Fuel Education Program	$400,000
F-3	Development of a Modular “Emergency Response to Alternative Fuels” Training Program for Fire Officials	$171,000
F-4	Educational Program for Alternative Fuels and Advanced Technologies in the Central Coast Region	$29,000
Research and Testing Projects		**$3,239,000**
R-1	Certification test procedure& technical evaluation of hybrids and PHEVs.	$1,050,000
R-2	Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California–Biodiesel Characterization and NO_x Formation and Mitigation Study (phase one)	$1,270,000
R-3	Biodiesel NO_x Formation and Mitigation Study (Phase two)	$419,000
R-4	Biodiesel Multimedia Assessment (UC Berkeley)	$70,000
R-5	Biodiesel Multimedia Assessment (UC Davis)	$30,000
R-6	Biofuel Refueling Equipment Research & Development Program	$400,000
Program Total		**24,706,000**

E85 and Other Alternative Fuel Infrastructure Projects (Attachment A)

Category Summary:
The objective of this category is two-fold: 1) to fund the retrofit of retail stations with E85 or other alternative fuel dispensing equipment, and 2) to fund the installation of E85 or other alternative fuel infrastructure at fleet locations throughout California. Of the retail stations to be funded, about 20 are to be located in the Sacramento Metropolitan Area. Because of the foothold E85-compatible flexible fuel vehicles have made in California, the emphasis of the grants under this category is to facilitate the establishment of a retail and fleet-use E85 infrastructure in California.

Evaluation and Scoring:
The criteria used to evaluate proposals included use of E85 (points given for use of E85), status as a small business (points given to small businesses), station location, station site plans, proposed budget and matching funds, source and pricing of alternative fuel, construction schedule and costs.

FUNDING ALLOCATED TO CATEGORY	**$7,000,000**
RECOMMENDED PROJECT FUNDING TOTAL	**$5,367,000**
NUMBER OF GRANT PROPOSALS RECOMMENDED/RECEIVED	**10 / 38**
TOTAL MATCH FUNDING LEVERAGED BY CATEGORY	**$2,720,000**
TOTAL OF FUNDS APPLIED FOR IN CATEGORY	**$26,000,000**

Summary of Proposals: Qualifying incoming projects can be divided into three broad categories: retail use projects, fleet use projects, and program implementation projects. The ten proposals we are recommending for funding will result in the installation of 47 E85 stations (34 retail and 13 fleet), two CNG facilities, one electric charging facility, and one B99 facility. Twenty of the retail use E85 stations and ten of the fleet use E85 stations will be located in the Sacramento Metropolitan Area. Many of the projects not selected were lacking sufficient detail.

Recommended Funding
Staff is recommending funding ten projects under this category. Of all of the projects recommended for funding, the one project that was allocated the most funds was project A-10 the Sacramento Metropolitan Air Quality Management's proposal would receive 3.5 million dollars to install up to 20 E85 retail stations and 10 E85 fleet stations in the Greater Sacramento area. Being one of the primary permitting agencies, the SMAQMD is in the unique position of resolving permitting issues as well as working directly with the other key local government agencies, e.g. the Fire Marshal's Office, in resolving potential roadblocks to station installation.

Category and project totals rounded to nearest thousand

Projects Recommended for Funding

A-1	Retail E85 Stations Located Along Hwy 101 and I-405	Community Environmental Council and Calstart

Amount Requested	Amount Recommended	Match Funding Offered
$580,000	$580,000	$120,000

Project Description

The Community Environmental Council (a small business non-profit) requests funding to locate E85 tanks and dispensers at existing retail gas stations along Hwy 101 and I-405 corridor in San Luis Obispo, Santa Barbara, Summerland, Los Angeles (Brentwood), and Culver City (three small businesses and two corporate stations). Co-funding of $30,000 per station at four of the five stations provided by U.S. DOE through WestStart-CALSTART. Staff recommends funding all five stations.

A-2	Retail E85 Stations modeled after RTC established throughout California	RTC Fuels, LLC dba Pearson Fuels

Amount Requested	Amount Recommended	Match Funding Offered
$2,675,920	$803,000	$1,337,960

Project Description

Pearson Fuels (a small business) requests funding to locate E85 and biodiesel tanks and dispensers at 20 existing retail fueling stations throughout California (sites to be determined). Pearson Fuels currently operates a retail fueling station in San Diego offering a wide variety of alternative fuels including E85, the only one of its kind in the state. Staff recommends funding only the E85 at eight stations.

A-3	Retail Cardlock B99 station in Orange County	Nickey Petroleum Co., Inc.

Amount Requested	Amount Recommended	Match Funding Offered
$13,994	$14,000	$13,994

Project Description

Nickey Petroleum (a small business) requests funding to offset costs for one of four used above ground tanks being installed at an existing cardlock fueling station in Placentia (Orange County), to market biodiesel (B99). Staff recommends funding the station.

Category and project totals rounded to nearest thousand

A-4	Retail and Fleet Electric Vehicle Recharging Stalls	Pacific Gas & Electric

Amount Requested	Amount Recommended	Match Funding Offered
$466,000	$175,000	$1,133,000

Project Description

PG&E requests funding to construct and/or refurbish six electric vehicle charging stations (various charging capabilities including Levels I, II, II+, and III) at existing PG&E facilities in San Francisco, Davis, Fresno, Vallejo, San Carlos, and Vacaville. Staff recommends awarding partial funding for this project. The Davis station was selected since it was the only site that allocated funds for all three Levels of charging: I, II, and III. PG&E had requested 60% funding for each facility and thus staff recommends a comparable funding percentage for the Davis site, or $175,200.

A-5	Retail and City Fleet Use E85 Station in Tulare	City of Tulare

Amount Requested	Amount Recommended	Match Funding Offered
$106,000	$106,000	$30,245

Project Description

The City of Tulare requests funding to locate an E85 above ground tank and dispenser at an existing retail fueling station along Hwy 99 in Tulare. The station will serve the City of Tulare's fleet of FFVs (currently 16) in addition to the general public. Co-funding of $30,000 provided by U.S. DOE through WestStart-CALSTART. Staff recommends funding the station.

A-6	Fleet E85 Station at UC Davis	UC Davis Fleet Services

Amount Requested	Amount Recommended	Match Funding Offered
$70,000	$70,000	$70,000

Project Description

UC Davis Fleet Services requests funding to locate an E85 above ground tank and dispenser on the Davis campus. The project will reuse a former methanol tank used by the California Fuel Cell Partnership. The station will serve UC Davis' fleet of FFVs (currently 55) as well as academic interests. Staff recommends funding the station.

Category and project totals rounded to nearest thousand

A-7	Fleet CNG station upgrade (two new dispensers) for City of San Francisco	City & County of San Francisco Department of the Environment
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$53,600	$54,000	$7,560
PROJECT DESCRIPTION		
San Francisco Dept. of the Environment requests funding to upgrade an existing CNG refueling station in southeastern San Francisco by adding two more dispensers. The station will serve San Francisco's fleet of CNG vehicles (1,350 transactions per month). Staff recommends funding the station.		

A-8	Fleet CNG station upgrade (two new tanks) for City of San Francisco	City & County of San Francisco Department of the Environment
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$57,280	$57,000	$7,928
PROJECT DESCRIPTION		
San Francisco Dept. of the Environment requests funding to upgrade a CNG refueling station currently under construction in western San Francisco (Golden Gate Park) by adding two more tanks. The station will serve San Francisco's fleet of CNG vehicles. Staff recommends funding the station.		

A-9	Fleet E85 station for Los Angeles County FFV fleet	County of Los Angeles Internal Services Department
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$8,300	$8,000	$0
PROJECT DESCRIPTION		
Los Angeles County Internal Services Dept. requests funding to locate an E85 underground tank and two dispensers at their fleet maintenance location east of downtown Los Angeles. The project will reuse a former methanol installation. The station will serve Los Angeles County's fleet of FFVs (20 with more purchases planned). Staff recommends funding the station.		

Category and project totals rounded to nearest thousand

A-10	Sacramento Metropolitan Area E85 Stations	Sacramento Metropolitan Air Quality Management District (SMAQMD)
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$3,500,000	$3,500,000	$0
PROJECT DESCRIPTION		
The Sacramento Metropolitan Air Quality Management District (SMAQMD) requests funding to implement a grant program, ultimately establishing up to 20 retail and 10 fleet E85 fueling stations in the greater Sacramento metropolitan area (sites to be determined). SMAQMD has resources and authority to work with local fire marshal regarding UL certification issues associated with E85 dispensing equipment. Staff recommends funding.		

Projects Next Most Qualified for Funding

A-11	Retail Biodiesel (B99) station in Berkeley	Biofuel Oasis
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$100,000	$100,000	$100,000
PROJECT DESCRIPTION		
Biofuel Oasis (a small business) requests funding to locate an above ground biodiesel (B99) tank and two dispensers at a former retail gasoline station on Ashby Avenue near I-80 in Berkeley. They also propose to distribute biodiesel at the wholesale level. Staff recommends consideration should additional funds become available.		

A-12	Fleet and Wholesale Bulk distribution center for B5 and B20	Robert V. Jensen, Inc.
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$ 70,000	$ 70,000	$169,215
PROJECT DESCRIPTION		
Robert V. Jensen (a small business) requests funding to locate an above ground biodiesel (B5 and B20) tank and multiple dispensers at an existing fleet cardlock fueling station along Hwy 99 in Fresno. They also propose to distribute biodiesel at the wholesale level. Staff recommends consideration should additional funds become available.		

Category and project totals rounded to nearest thousand

A-13	Retail E85/B99/Straight Vegetable Oil station installed in San Carlos	Autopia
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$100,000	$100,000	$155,000
PROJECT DESCRIPTION		
Autopia (a small business) requests funding to locate E85, biodiesel (B99) and straight vegetable oil (SVO) above ground tanks and dispenser(s) on El Camino Real in San Carlos (site to be determined). Staff recommends consideration should additional funds become available.		

A- 14	GTL Fuel (Fischer-Tropsch) Bus Demonstration Project	Shell International Petroleum Co, Ltd
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$240,000	$ 70,000	$50,000
PROJECT DESCRIPTION		
Shell requests funding to offset costs for supplying diesel fuel for a gas-to-liquid bus demonstration project with the Orange County Transit Authority (OCTA). The fuel will be made from Malaysian natural gas. Objectives of the demonstration project include an emissions testing program. Shell has also approached the South Coast Air Quality Management District (SCAQMD) for co-funding. Staff recommends consideration should additional funds become available.		

A-15	Fleet B99 station serving Fetzer Vineyards in Sonoma County	Envira Ecofuels, LLC
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$110,980	$ 70,000	$18,000
PROJECT DESCRIPTION		
Envira (a small business) requests funding to locate an above ground biodiesel (B99) tank and dispenser at Fetzer Vineyards in Hopland (Sonoma County). The station will serve 10 trucks and some farm equipment in Fetzer's fleet. Staff recommends consideration should additional funds become available.		

Category and project totals rounded to nearest thousand

A-16	Fleet E85 stations installed in Imperial Valley	Imperial Valley Biorefining, Inc.
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$210,000	$ 210,000	$210,000
PROJECT DESCRIPTION		
Imperial Valley Biorefining (a small business) requests funding to locate E85 tanks and dispensers at six stations in Imperial Valley for Imperial County and City of El Centro FFVs. Site locations are to be determined and number of FFVs in current fleet and/or to be purchased unspecified. The stations will serve Imperial County's and the City of El Centro's fleets. Staff recommends consideration should additional funds become available.		

Category and project totals rounded to nearest thousand

Biofuels-Startup of Small Production Facilities in California (Attachment B)

Category Summary:
The focus of this grant application package is to present proposals for Fuel Production Incentives. The types of fuel production projects that are eligible for incentive funding include, but are not limited to, new biofuel production facilities, digesters, and landfill gas-based liquid natural gas (LNG) or compressed natural gas (CNG). Funds will not support fuels derived from petroleum, petroleum coke, or coal.

Evaluation and Scoring:
Complete applications showing a projected operational date of December 31, 2008 were evaluated based on total project cost, proof of match funding, experience and qualification of principals, application of commercially proven technology, selection of feedstock, production volume, demonstration of project viability, and the ability to go on stream and obtain rated production within the desired timeline. The scoring also took into account the small business status of applicants.

FUNDING ALLOCATED TO CATEGORY	**$5,000,000**
RECOMMENDED PROJECT FUNDING TOTAL	**$6,000,000**
NUMBER OF GRANT PROPOSALS RECOMMENDED/RECEIVED	**10 / 50**
TOTAL OF FUNDS APPLIED FOR IN CATEGORY	**$43,000,000**
TOTAL MATCH FUNDING LEVERAGED BY CATEGORY	**$452,000,000**

Summary of Proposals:
Qualifying incoming projects can be divided into three broad categories. These include 31 projects based on production of biodiesel from virgin vegetable oils or waste grease, seven projects based on production of biogas from landfill gas or dairy waste, and four projects based on production of ethanol from corn or cellulosic biomass. The ethanol projects were not found to be competitive.

Recommended Funding:
It is recommended that $3.5 MM be awarded among six biodiesel projects and $2.5 MM among four projects generating biofuel from landfill gas or dairy waste. Projects next most qualified for funding in each category have also been identified.

Category and project totals rounded to nearest thousand

Projects Recommended for Funding

B-1	Convert cow manure waste into biofuel (Bakersfield)	Crimson Renewable Energy
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$1,000,000	$650,000	$13,550,000
PROJECT DESCRIPTION		
Collect and convert dairy cow manure wastes (815 tons per day from 15,000 dairy cows) into biofuels using gasification and anaerobic digestion technology. The produced biofuels will be supplied to pipeline utility companies as natural gas (1,000 Mcf per day) and to oil refineries as hydrocarbon liquids (32,280 gal/day). Ethane produced will be used as an energy source for an adjacent biodiesel refinery. Solid byproduct generated will be used as an organic fertilizer. Project could serve as a precedent-setting showcase for managing waste from large scale dairy farms. (Capacity - 4.3 MM gallons per year diesel equivalent)		

B-2	Produce Methane from Dairy Digester to power converted diesel milk trucks and generate electricity (Tulare County)	Hilarides Dairy
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$1,000,000	$600,000	$1,004,452
PROJECT DESCRIPTION		
Use an anaerobic lagoon digester to generate methane from the waste generated by the dairy's 9,100 milk cows. The biofuel (purified and compressed methane) generated will power the dairy's four converted diesel milk trucks. This project will generate 226 Mcf of biogas per day, reduce diesel consumption by 650 gallons per day, and create an additional 250 kW of electricity for on-site use. Project is an innovative attempt to manage environmental issues at a dairy and create an onsite self contained system of energy supply. (Capacity - 1.159 MM gallons per year diesel equivalent)		

Category and project totals rounded to nearest thousand

B-3	Convert landfill gas generated at Bowerman Landfill to liquefied natural gas (LNG) (Orange County)	Prometheus Energy

Amount Requested	Amount Recommended	Match Funding Offered
$1,000,000	$640,000	$18,631,837

Project Description

The decomposition of waste in landfills produces a low energy gas composed primarily of methane and carbon dioxide. At the Bowerman Landfill in Orange County, 10MMscf of waste gas is incinerated everyday. This project is an attempt to economically process the flare gas to produce up to 18,600 gal/day of liquefied natural gas (LNG). The produced LNG will be used by the Orange County Transit Authority for its 250 transit buses. Project proponents have successfully demonstrated their technology by operating a pilot plant at this site. The project is first-of- a- kind and will have an excellent positive environmental impact by generating biofuel from waste gas. (Capacity - 3.128 MM gallons per year diesel equivalent)

B-4	Convert landfill gas generated at Altamont Landfill to liquefied natural gas (LNG) (Livermore)	Gas Technology Institute Waste Management, Inc. Linde BOC

Amount Requested	Amount Recommended	Match Funding Offered
$999,914	$610,000	$11,050,011

Project Description

The decomposition of waste in landfills produces a low energy gas composed primarily of methane and carbon dioxide. This gas is routinely flared to the atmosphere. This project is an attempt to demonstrate onsite purification and liquefaction technology for the recovery and conversion of landfill gas to transportation fuel in the form of liquefied natural gas (LNG). Project will utilize 2,600 cubic feet per minute of collected landfill gas from the Altamont Landfill to produce 13,000 gallons per day of LNG for use by the Waste Management fleet vehicles. (Capacity - 2.4 MM gallons per year diesel equivalent)

B-5	10 MM gallons per year biodiesel plant (Oakland)	Blue Sky Bio-Fuels

Amount Requested	Amount Recommended	Match Funding Offered
$991,771	$620,000	$1,363,541

Project Description

Produce biodiesel from recycled waste vegetable oil and trap grease. Project proponents have secured a 10 year lease for its Oakland facility (within the State of California Enterprise Zone) and have obtained all significant permits and licenses. Blue Sky has submitted details of the project team, process flow diagrams, procurement and construction schedule, proof of project funding, and offtake contracts. Blue Sky also qualifies as a small business.

Category and project totals rounded to nearest thousand

B-6	3 MM gallons per year biodiesel plant (Pacifica)	Whole Energy Fuels
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$850,070	$620,000	$2,180,000
PROJECT DESCRIPTION		
Produce biodiesel from waste cooking oil. The plant will be located at the City of Pacifica's Calera Creek water recycling plant. Part of the fuel produced will operate a generator to provide electric power (and heat) to the biodiesel facility and the water recycling plant. Project proponents have prior experience in the design, construction, and operation of biodiesel plants. Project viability in terms of technical expertise, proof of project funding, and timelines is excellent. Whole Energy Fuels qualifies as a small business.		

B-7	10 MM gallons per year biodiesel plant (Sacramento)	Prima Fuel
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$999,999	$640,000	$12,434,999
PROJECT DESCRIPTION		
Produce biodiesel from vegetable oil (palm, soy, canola) using commercially available production equipment. The plant will be located at the Port of Sacramento. Project proponents have completed feasibility studies, permitting activities, selected equipment vendors, construction contractors, feedstock suppliers, and shown proof of funding to manage this project. Prima Fuel also qualifies as a small business.		

B-8	1.7 MM gallons per year biodiesel plant (San Diego)	New Leaf Biofuels
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$1,000,000	$590,000	$2,620,000
PROJECT DESCRIPTION		
Environmentally progressive small business. Project will produce biodiesel from waste vegetable oil and yellow grease. Produced fuel will be used (in part) to operate two microturbines to generate electricity and thermal energy for plant use. New Leaf has been gaining experience in the collection of waste oil since August 2006 and its collection routes already yield about 250,000 gallons per year. They plan to enhance this capacity and purchase up to 500,000 gallons of yellow grease on an as needed basis. The City of San Diego has selected New Leaf's project for its Cleantech program and has offered land for the project. New Leaf will use commercially available production technology and is in a position to meet all program goals.		

Category and project totals rounded to nearest thousand

B-9	5 MM gallons per year biodiesel plant (Chilcoot)	Simple Fuels
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$500,000	$400,000	$740,000
PROJECT DESCRIPTION		
Produce biodiesel from restaurant waste vegetable oil, grease, and virgin oil. The plant will be located in Eastern Plumas County near the town of Chilcoot. Project proponents have good knowledge of process and are requesting funding to allow a scale-up of the current batch plant of 500,000 gallons per year capacity to a 5 million gallons per year continuous operation by December 2008. The engineering designs are complete. Simple Fuels owns the project site and has the technical and fiscal strength to accomplish the project.		

B-10	10 MM gallons per year biodiesel plant (Santa Fe Springs)	Renewable Energy
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$1,000,000	$630,000	$4,370,000
PROJECT DESCRIPTION		
Produce biodiesel from vegetable oils using commercially available production equipment. The plant will be located on land previously occupied by a shut-down oil refinery in Santa Fe Springs and will use some of the existing storage tanks and piping systems. Based on details provided in the application, the plant has a high likelihood of successfully being online within the required time frame.		

Projects Next Most Qualified for Funding

B-11	Capture biogas from wastewater digester at Hilmar Cheese Plant and upgrade it to fuel heavy duty trucks (Hilmar, Central Valley)	Sustainable Conservation Hilmar Cheese
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$649,000		$575,000
PROJECT DESCRIPTION		
This project will be located at the Hilmar Cheese Plant and involves the capture of biogas from an existing process wastewater digester and upgrading of the gas to fuel quality biomethane. The gas is currently being flared. Concurrently, four to five of the facility's existing heavy duty trucks will be converted with previously arranged funding to operate on the biomethane (CNG) produced. If successful, the project will be expanded to treat biogas generated at nearby dairies. (Capacity - 0.152 MM gallons per year diesel equivalent)		

Category and project totals rounded to nearest thousand

B-12	7.5 MM gallons per year biodiesel plant (Stockton)	American Biodiesel
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$1,000,000		$10,250,000
PROJECT DESCRIPTION		
This project will produce biodiesel from multiple feedstocks (agricultural commodity oils: soybean, canola). Located at the Port of Stockton so feedstock transport is enabled by utilizing an active rail spur of the Port's short line rail system and rely on 200+ trucking companies that serve the Port of Stockton. Key permits are obtained.		

B-13	2.5 MM gallons per year biodiesel plant (Madera)	Pacific Ethanol
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$1,000,000		$3,700,000
PROJECT DESCRIPTION		
Project will produce biodiesel from oil extracted from corn stillage that comes from the product stream in the existing Pacific Ethanol's Madera ethanol plant. Process will use locally-produced ethanol instead of methanol in the esterfication process.		

B-14	30 MM gallons per year biodiesel plant (Stockton)	Crimson
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$1,000,000		$11,900,000
PROJECT DESCRIPTION		
This project will produce biodiesel from vegetable oil and animal fats, and yellow grease. Located at the Port of Stockton so feedstock import is enabled by marine access. Utilizes a proprietary process that reduces free fatty acid content, recovers and refines glycerin, and recovers excess methanol.		

B-15	10 MM gallons per year biodiesel plant (San Pedro)	Renewable Energy
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$1,000,000		$4,000,000
PROJECT DESCRIPTION		
Produce biodiesel from vegetable oils using commercially available production equipment. The plant will be located in San Pedro. Based on details provided in the application, the plant has a high likelihood of successfully being online within the required time frame.		

Category and project totals rounded to nearest thousand

B-16	30 MM gallons per year biodiesel plant (Bakersfield)	Crimson
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$1,000,000		$6,800,000
PROJECT DESCRIPTION		
This project will produce biodiesel from vegetable oil and animal fats, and yellow grease. Facility has infrastructure in place and permit process underway such that plant commissioning and start-up would be completed in November 2007. Utilizes a proprietary process that reduces free fatty acid content, recovers and refines glycerin, and recovers excess methanol.		

Category and project totals rounded to nearest thousand

Plug-in Hybrid, and Alternative Fuel Vehicles (Attachment C)

Category Summary:
The objective of this category is to fund demonstration and research activities that accelerate the commercialization of clean and efficient plug-in hybrids and alternative fuel vehicles. Priority in this AFIP category was given to plug-in hybrid electric vehicle-related projects that address barriers to commercialization.

Evaluation and Scoring:
Scoring of projects focused on project priorities. Highest priority projects looked at challenges to plug-in hybrid electric vehicle (PHEV) commercialization, including consumer acceptance and marketability, PHEV system or component evaluation under real-life conditions, battery technology readiness for on-vehicle application in PHEVs, PHEV certification testing development, and electric charging infrastructure issues. High priority topics included: medium-duty passenger vehicle or medium- or heavy-duty vehicle PHEV demonstrations in applications well suited for PHEVs. Medium priority projects included California-specific driving use surveys suitable for analysis of PHEV emissions and fuel use (utility factor), study and/or survey of California electric utility treatment of customers with electric and alternative fuel vehicles, public outreach or education activities with exclusive focus on PHEVs, and other alternative fuel vehicle demonstrations in suitable applications.

FUNDING ALLOCATED TO CATEGORY	**$5,000,000**
RECOMMENDED PROJECT FUNDING TOTAL	**$5,000,000**
NUMBER OF GRANT PROPOSALS RECOMMENDED/RECEIVED	**7 / 78**
TOTAL MATCH FUNDING LEVERAGED BY CATEGORY	**$7,524,000**
TOTAL OF FUNDS APPLIED FOR IN CATEGORY	**$56,000,000**

Summary of Projects:
The largest number of proposals submitted addressed design and development of PHEVs, but none of these adequately addressed barriers to PHEV commercialization. Recommended projects address electric infrastructure development, evaluation of batteries & other key PHEV technology issues, public education, and exploration of consumer response to plug-in (electric fuel) vehicles in particular.

Recommended Funding:
It is recommended that $5 MM be awarded among seven total projects. The next two projects most qualified for funding in this category have also been identified.

Category and project totals rounded to nearest thousand

Projects Recommended for Funding

C-1	California Clean Mobility Partnership (CalCMP)	University of California, Berkeley and Irvine
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
1,500,000	$1,103,000*	$2,337,000
PROJECT DESCRIPTION		
This joint UC Berkeley and UC Irvine project will provide a technical assessment and early market analysis of zero emission vehicles (ZEVs) and advanced technology partial zero emission vehicles (AT PZEVs). Vehicles to be deployed include fuel cell vehicles, PHEVs, and next generation conventional hybrids. User surveys will be employed before, during and after vehicle placement and will cover usage patterns, participant perceptions, refueling patterns, vehicle cost perceptions and effects of lower variable costs on driving behavior. The project will also include an evaluation of the challenges of certifying hybrids and PHEVs under current regulations, make recommendations for changes to existing protocols, will carry out a technical evaluation of plug in hybrids, and will provide an analysis of the utility-grid interaction with plug-in hybrids. This project supports several strategic needs within the ZEV regulation technology review in addressing certification protocol challenges, technical status, and potential initial markets for ZEVs and AT-PZEVs (including PHEVs). *A portion of the UC Irvine proposal ($397,000) was shifted to the Research/Testing Category as it addressed the goals outlined for PHEV research.		

C-2	Development of commercial medium power charging station	Tesla Motors
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$561,000	$561,000	$584,000
PROJECT DESCRIPTION		
Objective is to develop a UL compliant, weatherproof medium power (16 kilowatt), level 2+ commercial electric vehicle charging station that is equipped with Tesla's ACE connector. Objective is to work with SAE to make this new system J-1772 compliant. Project funds will be applied to development, beta testing, purchase of production tooling, and UL certification efforts. Subsequent initial deployment of these charging stations will be at hotel chains throughout California. This project revitalizes attention to ZEV electric charging infrastructure issues, and in particular, refocuses attention on SAE standards for charging.		

Category and project totals rounded to nearest thousand

C-3	Evaluation of Emerging Battery Technologies for Plug-in HEVs	Electric Power Research Institute, University of California Davis (Dr. Burke)
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$344,000	$344,000	$779,000
PROJECT DESCRIPTION		
This program will independently verify the performance claims for several new battery technologies, in particular, the lithium titanate batteries from Altarinano, Lithium ion batteries from Saft/JCI, GAIA, iron phosphate Lithium ion batteries from A123 & Valence, and Nickel metal hydride batteries from Panasonic, EV, Cobasys. Overall objective is to determine the performance of the various battery technologies and to assess their state of commercial readiness for application in Plug-in HEVs. This project supports a key need in the ZEV program for continued independent assessment of the performance and cost claims of several new battery technologies under consideration for application in PHEVs.		

C-4	PHEV Demonstration and Consumer Education, Outreach, and Market Research Program	University of California, Davis, Plug In Hybrid Electric Vehicle Center
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$1,500,000	$1,500,000	$422,000
PROJECT DESCRIPTION		
This project implements a PHEV-specific demonstration, research and education & outreach program. UCD will acquire 10 aftermarket or conversion PHEVs and place these PHEVs in up to 100 households and businesses for several weeks at a time. During the trial use periods, data will be collected on travel, recharging, refueling, vehicle performance, and participants' response. The project will also undertake public education and outreach activities. Topics to be evaluated will include: attractiveness of mobile electricity (how much needed?), vehicle to grid issues, and consumer preference for blended versus all electric range, and social and environmental effects on consumer choices. The principle investigators for this project are premier consumer behavior researchers using hands on driver experience for data collection. This project supports the ZEV regulation technology review by addressing PHEV usage and marketability issues.		

Category and project totals rounded to nearest thousand

C-5	SAE Formula Hybrid Sponsorship	Plug in America
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$142,00	$142,000	$152,000
PROJECT DESCRIPTION		
This project provides support for California Colleges and Universities who wish to participate with Plug-in HEVs in the SAE Formula Hybrid Competition. Activities include partial-sponsorship of four California teams, publicizing the program, and assisting with regional and national competitions. The project provides electric and plug-in hybrid –specific education/outreach, but with the added benefit of inspiring student-engineers to consider working in the electric automotive field. This project is an effective use of funds to support development of a potential pool of trained technical professionals when manufacturers begin their commercial deployment of plug in vehicles.		

C-6	EV Television Show Pilot Episode	ZEV Research
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$150,000	$150,000	Up to $1,200,000
PROJECT DESCRIPTION		
Development of a TV car show series (much like the currently popular vehicle-based shows like Overhaulin, Rides, and Trucks!). The series will include a mix of professional and amateur organizations that convert commuter, luxury, and sports cars to operate on electric power. The bulk of grant will be allocated towards the development of the series Pilot episode. This project is an effective use of funds to support consumer education specifically related to raising awareness of electric drive vehicles.		

C-7	Medium-Duty PHEV Demonstration	Electric Power Research Institute / Eaton
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$1,200,000	$1,200,000	$2,050,000
PROJECT DESCRIPTION		
This project will develop a PHEV drive system based on Eaton's commercial hybrid technology for commercial vehicles, integrate this system in to five prototype vehicles, and test/ demonstrate these vehicles in utility and public fleets. Deliverables funded would include; two PHEV F550 Trouble Trucks for demonstration at Pacific Gas & Electric and Los Angeles Department of Water and Power and a gasoline PHEV E450 Shuttle Bus for ARB testing and demonstration. This project expands PHEV demonstration and evaluation to medium-duty vehicles which are expected to offer significant criteria and greenhouse gas emission reductions.		

Category and project totals rounded to nearest thousand

Projects Next Most Qualified for Funding

C-8	PHEV Charging Infrastructure and Battery Technology Demonstration	AeroVironment
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$1,020,000	$1,020, 000	$425,000
PROJECT DESCRIPTION		
This project would investigate; infrastructure-related topics, including time of use penalty charges, grid communication with vehicles, charging equipment standards, grid impacts, and vehicle impacts. It would also carry out a PHEV charging equipment study, including application of fast charging, time of use charges, type of infrastructure versus fleet application. The project would develop and test a unidirectional grid smart charging black box, investigate reduction in greenhouse gases via smart charging, wind/renewables load-driven penetration, vehicle to grid impacts and battery technology readiness.		

C-9	Advanced BEV Battery (and System) Testing	Tesla Motors
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$963,000	$963,000	$1,043,000
PROJECT DESCRIPTION		
This project would carry out cell and module cycle testing of advanced battery systems for battery electric vehicles, develop cooling technology for battery packs, test battery reliability, perform safety simulations and validation testing.		

Category and project totals rounded to nearest thousand

Transit Bus Projects
(Attachment D)

Category Summary:
The focus of this category is to help facilitate the development and optimization of zero emission and zero emission enabling bus technology in California transit fleets.

Evaluation and Scoring:
To be eligible, the selected bus technology must have the potential for application throughout California and the technology proponents must include a transit agency and a bus-operating plan. Highest points were awarded for projects that appeared well planned and presented, that included full size "Urban" buses, zero emission technology, and included well developed bus operating plans.

FUNDING ALLOCATED TO CATEGORY	**$ 2,000,000**
RECOMMENDED PROJECT FUNDING TOTAL	**$ 2,000,000**
NUMBER OF GRANT PROPOSALS RECOMMENDED/RECEIVED	**2 / 8**
TOTAL MATCH FUNDING LEVERAGED BY CATEGORY	**$ 17,111,000**
TOTAL OF FUNDS APPLIED FOR IN CATEGORY	**$ 9,700,000**

Summary of Proposals:
Qualifying projects can be divided into two main categories: zero emission technology and zero emission enabling technology projects. Three projects utilize zero emission bus technologies; two of the bus projects will use hydrogen fuel cells, while the remaining project proposes to use an all electric plug-in technology. Four projects utilize a zero emission enabling technology. Three of these bus projects will operate on a hydrogen internal combustion engine and use a hybrid electric drive system, while the remaining project utilizes an internal combustion engine that operates on both CNG and hydrogen. One project does not qualify under the AFIP program because it utilizes a petroleum based fuel.

Recommended Funding:
Based on the scoring results, staff recommends that the $2 MM be awarded to two projects. If additional funding is available, it is first recommended that the MTC project be funded to the extent possible up to the maximum amount requested, then if funds are still available, an additional project is identified as the next most qualified for funding.

Category and project totals rounded to nearest thousand

Projects Recommended for Funding

D-1	Battery Dominant, Fuel Cell, Plug-in Hybrid Transit Bus	City of Burbank
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$ 1,370,000	$1,370,000	$ 616,000 direct $1,950,000 in-direct
PROJECT DESCRIPTION		
The City of Burbank leads this effort to demonstrate a battery dominant, plug-in hybrid electric bus in California. Unique to this project will be the use of two 16 kilowatt fuel cells; a 35 foot lightweight, composite material, bus chassis that is being designed from the ground up as a hybrid chassis and battery energy storage with Alternano lithium battery technology. The City of Burbank plans on operating the bus on the 'Media District Shuttle' route which travels from a Metrolink station to the Media district serving high profile employers such as Disney, Warner Brothers, NBC and St Joseph's Medical Center. This project would place a hydrogen fueled zero emission, fuel cell, bus in the South Coast Air Basin. Transit agencies in the South Coast with fleets of over 200 buses will be required to purchase Zero Emission Buses starting in 2012.		

D-2	Bay Area Zero Emission Bus Advanced Demonstration	Metropolitan Transportation Commission
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$ 2,000,000	$ 630,000	$14,545,000 (costs for Buses) Total estimated cost of project is $37 million.
PROJECT DESCRIPTION		
The Zero Emission Bay Area fuel cell bus transit project includes the five major transit districts in the Bay Area. This project is part of a larger effort to demonstrate a fleet of fuel cell buses and provide learning opportunities to the five major transit operators in the Bay Area. This project will acquire and operate 9 new hybrid fuel cell buses with improved hybrid bus chassis, and retrofit 3 fuel cell buses with improved fuel cell and battery storage technology. ARB is also funding this project through the Hydrogen Highway program. This program funding would be used to develop improved fuel cell system packaging that would allow "plug and play" type use. The intent is to develop a fuel cell package that could be used with any electric-drive bus chassis. Providing this supplemental funding will enhance the overall program and broaden the project's prospects for contributing to commercialization of zero emission buses.		

Category and project totals rounded to nearest thousand

Project Next Most Qualified for Funding

D-3	Development and Fabrication of Hydrogen Hybrid Internal Combustion Engine Bus	SunLine Transit Partner: ISE
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$ 873,462		$ 960,000

PROJECT DESCRIPTION

SunLine Transit agency has been a leader in the use of alternative fueled transit buses in California. This project would fund the research and development of new engine and hybrid control software for an existing hydrogen hybrid electric internal combustion engine (HHICE) powered transit bus to allow improvements in efficiency and operation. In addition, the funding would be used to co-fund a second HHICE bus. The project would demonstrate improved engine efficiency and two very low emission engines in transit applications. Emissions level at or below the 2010 heavy duty standards would be demonstrated.

Category and project totals rounded to nearest thousand

Alternative Fuel Vehicle Incentive Program (Attachment E)

Category Summary:
The Alternative Fuel Vehicle Incentive Program (AFVIP) makes $1,500,000 available in incentives for zero-emission, plug-in hybrid, and alternative fuel vehicles. The incentive grants range from $2,000 for neighborhood electric vehicles and zero emission motorcycles to $10,000 for full function battery electric and fuel cell vehicles. Grants for alternative fuel and light- and medium-duty plug-in hybrid vehicles fall in the middle. The solicitation for this program was to choose a grant program administrator. The selected administrator may invoice up to $150,000 for program administration (10 percent of the total program cost). Proposals were scored according to program management costs, in-kind and match funding, experience (both grant administration and alternative fuel vehicles) and administration plan. All proponents in this category were competing for one project – administration of a vehicle grant incentive program; thus, only one proponent was selected.

FUNDING ALLOCATED TO CATEGORY	**$1,500,000**
RECOMMENDED PROJECT FUNDING TOTAL	**$1,500,000**
NUMBER OF GRANT PROPOSALS RECOMMENDED/RECEIVED	**1 / 4**
TOTAL MATCH FUNDING LEVERAGED BY CATEGORY	**$20,000**
TOTAL OF FUNDS APPLIED FOR IN CATEGORY	**$1,500,000**

Project Recommended for Funding

E-1	**Alternative Fuel Incentive Program Administrator**	**San Diego Regional Energy Office**
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$1,500,000	$1,500,000	$20,000
PROJECT DESCRIPTION		
San Diego Regional Energy Office will work with ARB staff to finalize vehicle incentive program guidelines – stipulating applicant and vehicle eligibility. Once the program is in place, they will develop, disseminate, receive, evaluate, and process applications, disseminate grant funds, prepare quarterly reports on numbers of applicants, grants and remaining funding, and work with ARB staff on outreach. Outreach will include a toll-free number and website. Match funding will be used to: (1) survey grant awardees regarding vehicle satisfaction, current and previous modes of transportation, and driving habits; (2) estimate before and after carbon footprints; (3) produce case studies highlighting program participants; and (4) analyze the grant program to determine its effectiveness in promoting the use of alternative fuel vehicles. This grant program is expected to provide incentives for several alternative fuel vehicles, which in turn, should aid market commercialization.		

Category and project totals rounded to nearest thousand

Consumer Education and Outreach (Attachment F)

Category Summary:
The Education and Outreach section solicited proposals in two categories. 1) Marketing firms were invited to propose a statewide consumer marketing campaign that would address the barriers to consumer acceptance of cleaner vehicles and ultimately increase the number of these vehicles on California roads. 2) Universities, government and non-government organizations, air districts, educational facilities and other organizations in California were invited to submit funding requests to augment existing, or begin a new outreach program that would educate Californians about advanced technology and alternative fuel vehicles. The intention was to choose one marketing firm to carry out a statewide campaign, and to select one or more of the top education program proposals with the maximum potential to meet the program's goals.

Evaluation and Scoring:
The criteria used in scoring these proposals were:
Cost – Were they clear, inclusive and appropriate for quality and quantity of work.
Plan – Was it well organized, creative and did it maximize the budget with high impact activities that strongly support ARB's goals.
Qualifications – Did the organization possess strong experience and capability to carry out activities.

FUNDING ALLOCATED TO CATEGORY	**$1,600,000**
RECOMMENDED PROJECT FUNDING TOTAL	**$1,600,000**
NUMBER OF GRANT PROPOSALS RECEIVED	**36**
TOTAL MATCH FUNDING LEVERAGED BY CATEGORY	**$257,000**
TOTAL OF FUNDS APPLIED FOR IN CATEGORY	**$23,275,946**

Summary of Proposals:
There were 10 qualifying proposals for statewide consumer marketing campaigns. Each proposal outlined specific activities targeted to audiences suggested as being important in improving consumer acceptance of clean vehicles and fuels.

Additionally, there were 26 qualifying proposals for educational programs outlining a wide variety of existing and proposed new activities. These included: 11 campaign-related proposals that called for new educational materials to be developed; 4 focusing on TV production; 2 to support an existing educational

Category and project totals rounded to nearest thousand

facility; and 2 each focusing on educating students, training a specific audience (truckers / emergency responders), and facilitating educational tours.

Recommended Funding:

Staff recommends funding one statewide consumer marketing campaign at $1,000,000, and three educational programs totaling $600,000. Of the two categories, the statewide consumer campaign was allocated the most funding as it is believed to provide the greatest impact on consumer acceptance of clean vehicles and fuels. For this reason, staff recommends additional funding go toward supplementing the statewide consumer campaign if more funds become available.

Projects Recommended for Funding

F-1	**Statewide Consumer Marketing Campaign to Promote Advanced Technology and Alternative Fuel Vehicles**	**Ogilvy Public Relations Worldwide**
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$1,332,295	$1,000,000	Not applicable
PROJECT DESCRIPTION		
Funding will go toward a statewide consumer outreach campaign to address barriers to consumer acceptance of advanced technology and alternative fuel vehicles and ultimately lead to more of these vehicles sold in California. A campaign of this nature is important because clean vehicles will only produce the air quality benefits California needs if the vehicles are accepted by the public and purchased in increasing numbers. The campaign will include activities such as partnerships with auto malls hosting ride & drive promotions, showcasing of vehicles at shopping malls, DriveClean.ca.gov web site upgrades and widespread promotions, Los Angeles Auto Show “Green Street” participation and celebrity promotions and promotion of the vehicle clean air label Ogilvy’s strategic approach strongly aligns with recent ARB market research findings that car buyers believe clean cars to be inferior, and Californians do not consider the environment in their vehicle purchase decision.		

Category and project totals rounded to nearest thousand

F-2	EcoCenter Alternative Fuel Education Program	San Diego Environmental Foundation
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$402,549	$400,000	about $200,000 annually

PROJECT DESCRIPTION

The San Diego Environmental Foundation is a non-profit organization that educates the community on impacts of individual and societal choices regarding energy, transportation and the environment. Their primary outreach and education program is the EcoCenter for Alternative Fuel Education. The EcoCenter is a 6,000 square foot theatre and exhibition hall that also features a mainstream fueling center dispensing propane, ethanol, biodiesel, CNG and electric charge along side gasoline and diesel. The EcoCenter has been visited by more than 20,000 children between the ages of 9 and 13, as well as thousands of adults.

Funding will go toward increasing the EcoCenter's reach to 10,000 students per year, allowing underprivileged schools to attend at no cost, creating online materials for classrooms, and establishing a manual to re-create the program in other regions of the state. This program will lead to support of clean vehicle technologies among the next generation of leaders, scientists, teachers, technicians and car buyers.

F-3	Development of a Modular "Emergency Response to Alternative Fuels" Training Program for Fire Officials	Office of the State Fire Marshal, State Fire Training (CAL FIRE)
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$495,663	$171,000	$48,000

PROJECT DESCRIPTION

State Fire Training is a Division within the Office of the State Fire Marshal that provides training and certification for California's 60,000 fire service professionals. Funding will go toward the creating and implementation of a modular alternative fuels training program, providing technical training and emergency response information on bio-diesel, ethanol, hydrogen fuel cell, propane, natural gas, hybrid electric and battery electric vehicles, technical information for building officials and fire inspectors to plan, review, inspect and permit hydrogen stations. This level of training has not been available to date. The program will result in faster, more streamlined development of alternative fuel infrastructure, and a more confident emergency responder workforce making on-scene decisions during emergencies involving advanced technology vehicles. Emergency responder knowledge and confidence in dealing with non-traditional vehicles and fuels goes a long way in conveying a sense of "safety" among the California public.

Category and project totals rounded to nearest thousand

F-4	Educational Program for Alternative Fuels and Advanced Technologies in the Central Coast Region	Central Coast Clean Cities Coalition (C5)
AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
$28,500	$29,000	$9,000

PROJECT DESCRIPTION

C5 is a non-profit organization that promotes alternative fuels, vehicles and infrastructure throughout California's central coast. The organization's goal is to increase the number of alternative fuel vehicles in the central coast region by 17% annually.

Funding will go toward creating and distributing a brochure highlighting advanced technology vehicles available, establishing and touring at events a mobile display with 9 interactive modules highlighting each advanced technology and alternative fuel, supporting a Green Vehicle Big Tent Sale to market and sell clean vehicles and supporting an Alternative Fuels Symposium for fleets, officials and the public.

Project Next Most Qualified for Funding

F-5	Educational Tools for Scripps Ranch Renewable Energy Education Center	San Diego Unified School District
AMOUNT REQUESTED	AMOUNT RECOMMENDED IF FUNDED	MATCH FUNDING OFFERED
$60,000		$25,500

PROJECT DESCRIPTION

The San Diego Unified School District (SDUSD) is currently developing a hydrogen fueling station accompanied by a Renewable Energy Education Center. The proposed program would create interactive displays for the Renewable Energy Education Center that highlight alternative fuels and their ability to reduce greenhouse gas emissions. Funding would go toward creating four interactive displays highlighting the impact of vehicles on the environment, fuel cell technology, benefits and production of biodiesel, and would showcase electric vehicle and plug-in hybrid technologies, developing curriculum for k-12 students, supporting an outreach campaign to draw the public to the site. SDUSD is currently receiving $1,000,000 in funding through the California Hydrogen Highway Network for the development of their hydrogen fueling station.

Category and project totals rounded to nearest thousand

Research and Testing

Summary of Category:
Staff identified a small number of key research projects and testing programs that would enhance ARB's understanding of certain alternative fuel issues. Following is a description of the projects recommended for funding under this category.

Evaluation and Scoring:
These projects were not part of the Grant Solicitation process.

FUNDING ALLOCATED TO CATEGORY	**$3,300,000**
RECOMMENDED PROJECT FUNDING TOTAL	**$3,239,000**
NUMBER OF PROJECTS	**6**

Summary of Project Areas:

Plug In Hybrid Electric Vehicles: The Air Resources Board (ARB) has been tasked to develop a Plug-In Hybrid Electric Vehicle (PHEV) test method for certifying new PHEVs. This program includes the development of test procedures for different PHEV platforms, and includes exhaust and evaporative emissions procedures, which may consider various conventional and alternative test fuels. In order to support these activities, ARB staff is proposing a PHEV certification test method research study for both hybrid vehicles and PHEVs to assess various vehicle operation characteristics. The main components of this project include the coordination, or the purchase of PHEV/hybrid test vehicles, PHEV certification evaluation and testing, and PHEV/hybrid vehicle technical analysis.

Biodiesel: The Air Resources Board (ARB) has been tasked to develop a biodiesel program that includes the development of biodiesel fuel specifications and biodiesel strategies to reduce greenhouse gas emissions and to increase the production of biodiesel in California. In order to support these activities, ARB staff is proposing a biodiesel research study to assess the impacts from the use of biodiesel in California. There are three main components to the biodiesel research, a biodiesel emissions study to access the impact of biodiesel use on air emissions, a NOx formation and mitigation study, and a multi-media evaluation to determine the impact of biodiesel use on the environment and human health. The biodiesel multimedia evaluation consists of three tiers of assessments per the "Draft Guidance Document and Recommendations on the Types of Scientific Information to be Submitted by Applicants for California Fuels Environmental Multimedia Evaluations." Tiers 1, 2, and parts of 3 will be funded from existing ARB funds ($300,000). Funding of the remainder part of Tier 3 assessment is proposed to come from the Alternative Fuels Incentive Program ($100,000).

Category and project totals rounded to nearest thousand

E85: In response to Attachment A, *E85 and Other Alternative Fuel Infrastructure Projects*, ARB will be funding the installation of E85 dispensing facilities through out California. Therefore, there is an immediate need for Underwriter Laboratory (UL) certified E85 dispensing equipment and CARB certified E85 vapor recovery systems. ARB staff is proposing to partially fund Proposal A-37, *Biofuel Refueling Equipment Research and Development Program.* This proposal will result in UL and CARB certified E85 dispensing equipment. The project entails component design engineering, material compatibility testing, and complete fueling system(s) development work that will satisfactorily address existing compliance and certification standards set by regulatory agencies.

Projects to be Funded

R-1	**Certification test procedure & technical evaluation of hybrids and PHEVs.**	**University of California, Irvine**
PROJECT COST		
$1,050,000		
PROJECT DESCRIPTION		
UC Irvine and the project partners will evaluate the challenges of PHEV certification under the current hybrid certification guidance and regulations. This project will define appropriate duty cycles to evaluate PHEVs, define all-electric range or blended modes for PHEVs, identify instrumentation and testing protocols, evaluate factors that influence transient criteria pollutants from either cold catalyst or saturated evaporative emissions captured by charcoal canisters under all-electric modes, evaluate technical attributes of PHEVs and evaluate certification testing based on protocols developed under this program. This project will also procure a variety of vehicles for testing and equipment to carry out alternative fuel vehicle testing.		

Category and project totals rounded to nearest thousand

R-2	**Assessment of the Emissions from the Use of Biodiesel as a Motor Vehicle Fuel in California– Biodiesel Characterization and NO_x Formation and Mitigation Study (phase one)**	**College of Engineering-Center for Environmental Research and Technology (CE-CERT) University of California**
PROJECT COST		
$1,270,000		
PROJECT DESCRIPTION		

The first objective of this study is to directly address the impact of biodiesel use in California and to fill knowledge gaps in the existing database. The main elements of this objective are to compare the emission impacts from the use of biodiesel derived from current biodiesel feedstocks common to California to ARB ULSD that includes a wide range of pollutants including criteria, toxics, greenhouse gas emissions, and non-regulated pollutants. Also, the study would evaluate toxic exposure and health effects of biodiesel and evaluate test engines and vehicles that are common to California and test cycles that represent a range of driving conditions that can influence the engine response from biodiesel.

The second objective is to conduct the initial phase (phase one) of the study to identify the principle NOx formation mechanism and to find ways to mitigate NOx emissions from biodiesel use. Also, if biodiesel blends are determined to increase NOx emissions then it is important to find mitigation strategies that make biodiesel NOx neutral or better when compared to CARB diesel use. This study will address this in three ways: changes in fuel specifications, incorporate biodiesel as a feedstock in the petroleum refinery process, and use additives to reduce NOx from biodiesel use.

R-3	**Biodiesel NO_x Formation and Mitigation Study (Phase two)**	**CE-CERT, University of California**
PROJECT COST		
$419,000		
PROJECT DESCRIPTION		

The objective of the phase two (final phase) of the NOx mitigation study is to further evaluate the most promising NOx mitigation strategies tested in phase one. These include the most promising fuel additives, optimized fuel blends and second generation biodiesel fuels. In addition, the results from phase one of the study will be used to provide direction to phase two in terms of evaluating other potential NOx mitigation strategies such as other classes of additives.

Phase two will be conducted at the ARB heavy-duty test facility (HDETF), which will require an upgrade to the engine dynamometer.

Category and project totals rounded to nearest thousand

R-4	Biodiesel Multimedia Assessment	University of California Berkeley (UCB)
PROJECT COST		
$30,000		
PROJECT DESCRIPTION		

Health and Safety Code Section 43830.8 requires that any regulation that establishes a specification for motor vehicle fuel cannot be adopted until multimedia evaluation has been conducted. Since ARB is planning to develop regulations specifying biodiesel fuel specifications, a multimedia evaluation will be conducted.

The multimedia evaluation will be conducted on biodiesel feedstocks and blend levels that will likely be used in California. This will include an evaluation of impacts to the environment and human health. The evaluation will be designed to compare the impacts of biodiesel and biodiesel blends against ARB ultra-low sulfur (ULSD) fuel.

UC Berkeley's effort will focus on life-cycle methodology, motor vehicle, and emissions/greenhouse gas issues. UCB will perform evaluation of reviews of biodiesel production, conveyance, storage, combustion, and environmental interactions processes to identify specific knowledge gaps. Experimental and modeling work and field-specific studies will be reviewed and evaluated. Finally, the air emissions data obtained from project R-2 will be used in the determination of the air impact component of this multimedia assessment.

R-5	Biodiesel Multimedia Assessment	University of California Davis (UCD)
PROJECT COST		
$70,000		
PROJECT DESCRIPTION		

Health and Safety Code Section 43830.8 requires that any regulation that establishes a specification for motor vehicle fuel cannot be adopted until multimedia evaluation has been conducted. Since ARB is planning to develop regulations specifying biodiesel fuel specifications, a multimedia evaluation will be conducted.

The multimedia evaluation will be conducted on biodiesel feedstocks and blend levels that will likely be used in California. This will include an evaluation of impacts to the environment and human health. The evaluation will be designed to compare the impacts of biodiesel and biodiesel blends against ARB Ultra Low Sulfur Diesel fuel.

The UCD assessment will focus on regulatory impact, subsurface fate and transport, aquatic toxicology, human health effects, biodegradation in the environment, aquatic toxicology subsurface partitioning, fate and transport in groundwater, and human health effects. This assessment will identify

impacts and identify specific knowledge gaps. Finally, the air emissions data obtained from project R-2 will be used in the determination of the air impact component of this multimedia assessment.

R-6	Biofuel Refueling Equipment Research & Development Program	CleanFUEL USA

AMOUNT REQUESTED	AMOUNT RECOMMENDED	MATCH FUNDING OFFERED
&750,000	$400,000	$2,990,425

PROJECT DESCRIPTION

CleanFuel USA will coordinate the design, testing, and development of E85 dispensing equipment and submit dispensing components/systems to UL for certification. Project partners include Clean Fueling Technologies, Goodyear, Dresser Wayne, Gilbarco, and OPW. Project team will install BETA sites for E85 dispensing technologies for ARB staff to certify as complete E85 vapor recovery systems.

ATTACHMENT

CONCEPT PROPOSALS

EXPENDITURE PLAN FOR $25 MILLION TO DEMONSTRATE CLEAN ALTERNATIVE FUELS AND VEHICLES
(OCTOBER 2006) *****

$7M **E-85 AND POTENTIALLY OTHER ALTERNATIVE FUELS: FUEL INFRASTRUCTURE AND PRICE PARITY INCENTIVES**

FLEET USE OF E-85 AND POTENTIALLY OTHER ALTERNATIVE FUELS

- Provide incentives to install E-85 and potentially other alternative fuel infrastructure, including vapor recovery systems at an estimated 20 fleet locations throughout California. Funding amount site-specific, not to exceed $50 thousand per site.

GENERAL PUBLIC USE OF E-85 AND POTENTIALLY OTHER ALTERNATIVE FUELS

- Provide incentives to retrofit 20 retail stations with E-85 and potentially other alternative fuel dispensing equipment. Stations could be either concentrated in Sacramento Area or in another geographic area where at least 4,000 registered FFV owners reside. ARB and CEC to determine area after evaluating interested applications. Funding amount site-specific, proposed not to exceed $100 thousand per site.

- Develop purchase incentives for E-85 and potentially other alternative fuels

$5M **BIOFUELS – STARTUP OF SMALL PRODUCTION FACILITIES IN CALIFORNIA**

- Provide grant to reimburse of up to $1 million each in construction support for new, in-state biofuels facilities (e.g., biodiesel, digesters)
- Reimburse facility owner through a $0.50 per gallon payment for each gallon of biofuel produced at the newly constructed plant using California materials, credit reduced in half if plant uses feedstocks imported from outside California.
- Require at least 50 percent of the construction cost be funded from other sources.

* Note that all numbers are subject to change.

$5M HYBRID ELECTRIC VEHICLE DEMONSTRATION PROJECTS

Provide grants for demonstration of hybrid electric vehicle technologies leading to commercialization. Focus on grants for plug-in hybrid electric vehicle (PHEV) programs aimed at: (1) demonstrating light and medium-duty vehicles, and (2) evaluation of consumer acceptance and usage patterns for PHEVs. May also provide grants for demonstration of medium duty and heavy duty hybrid vehicles utilizing biofuels.

$2M TRANSIT BUS PROJECTS

Make grants available to transit districts demonstrating buses using zero emission or zero emission-enabling technology. Battery electric and fuel cell buses would be examples of the former; hydrogen internal combustion engine or hydrogen/compressed natural gas fuel blend buses would be examples of the latter.

$1.5M INCENTIVES FOR AT PZEVS AND ZEVS

Encourage the near zero and zero emission vehicle market by providing purchase or lease incentives for alternative fuel advanced technology partial zero emission vehicles (AT PZEVs) and zero emission vehicles (ZEVs).

$3.5M ALTERNATIVE FUEL VEHICLE RESEARCH

Support emission and performance testing of alternative fuel-powered vehicles (E-85 and biodiesel blends) and PHEVs.

$1M FUNDING FOR CONSUMER EDUCATION AND OUTREACH

Provide education necessary to promote the mass commercialization of alternative fuels and infrastructure. Educate public, car dealers, and mechanics about the benefits and characteristics of alternative fuels and vehicles. Educate government and permitting officials about alternative fuels to facilitate placement of alternative fuel stations.